

Notice of Allowability

Application No.

09/669,384

Examiner

Shefali D Patel

Applicant(s)

SUMI ET AL.

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2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an amendment filed on 2/22/05.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ The drawings filed on 26 September 2000 and 23 September 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>3/31/05</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT AND ALLOWANCE

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Douglas W. Sprinkle (Reg. No. 27,394) on March 31, 2005.

The application has been amended as follows:

Please amend claim 5 as follow:

Line 1 after the word "A" delete "recording" insert - - computer readable - -

Amend claims 6, 7, and 8 as follow:

Line 1 after the word "The" delete "recording" insert - - computer readable - -

Allowable Subject Matter

2. Claims 1-9 are allowed.
3. The following is an examiner's statement of reasons for allowance:

Please note: the phrase "detecting step for detecting the position/posture of the object" at line 13 of claim 1, line 3 of claim 5 (on page 4 of the amendment submitted on February 11, 2005), and line 12 of claim 9 is and has been assumed to mean "detecting step for detecting the position AND posture of the object." Throughout the specification, especially on pages 9-11, it is clear that the applicant obtains the position of the object in order to obtain the posture. This issue was brought to the attention of Mr. Sprinkle on March 31, 2005 during the phone conversation and

Mr. Sprinkle agreed that the slash "/" meant to say "position AND posture" as disclosed in the specification.

The instant invention defines a method for tracing the three-dimensional motion of an object having an arbitrarily curved and smooth surface, based on the stereo image of the object concerned obtained in time series as claimed in independent claims 1, 5, and 9. The claimed invention distinguishes over the prior art by the manner in which the detecting step for detecting the position/posture of the object from the three-dimensional coordinates of the respective tracing points where in different condition apply depending on whether the detected error is small enough or not small enough. The claimed combination allows for improving a method for tracing the three-dimensional motion of an object having an arbitrarily curved and smooth surface, based on the stereo image of the object concerned obtained in time series.

An object motion tracing method is conventional. However, the prior art of record fails to teach the limitations of detecting a detection error wherein *if the detected error is not small enough*, the three-dimensional motion of aforesaid object is traced by continuously repeating each process from the selecting step through the detecting step toward each frame of the stereo image obtained in time series, or *if the detected error is small enough*, the three-dimensional motion of the aforesaid object is traced by continuously repeating each process from the inputting step through the detecting step toward each frame of the stereo image obtained in time series as recited in claims 1 and 5. The prior art of record also fails to teach the limitation of having a selecting step for selecting tracing points corresponding to the silhouette of the object concerned in the stereo image of the object, *wherein the rigid body motion parameters of an object between frames of inputted images in time series and the form of the silhouette varying every moment are estimated simultaneously* as recited in claim 9.

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These elements in combination with all of the other elements of the claims are not taught or fairly suggested in the prior art of record. The dependent claims 2-4 and 6-8 are allowed for the same reasons.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

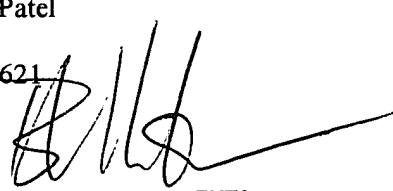
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M Mehta can be reached on (571) 272- 7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 31, 2005

Shefali D Patel
Examiner
Art Unit 2621



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